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(54) **SOCIAL NETWORK SYSTEM**

(71) Applicant: **ProSports Technologies, LLC**, Miami, FL (US)

(72) Inventors: **John E. Cronin**, Bonita Springs, FL (US); **Richard Fields**, Miami, FL (US)

(73) Assignee: **PROSPORTS TECHNOLOGIES, LLC**, Miami, FL (US)

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G10L 15/26 (2006.01)
H04L 12/58 (2006.01)

(52) **U.S. Cl.**
CPC ***G10L 15/26*** (2013.01); ***H04L 51/12*** (2013.01); ***H04L 51/32*** (2013.01)

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USPC 704/1–10, 231, 235, 270, 270.1, 251, 704/255, 257
See application file for complete search history.

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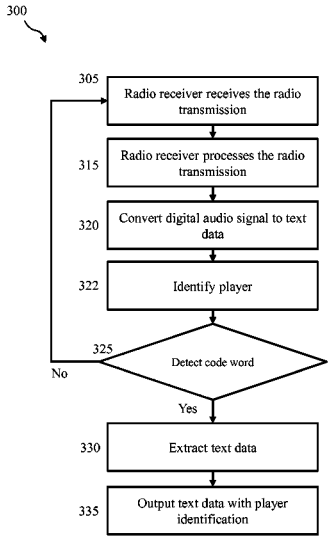
Primary Examiner — Huyen Vo
(74) *Attorney, Agent, or Firm* — Polsinelli LLP

(57) **ABSTRACT**

The present invention includes systems and methods for sending social media messages without the need for keyboard inputs. A microphone captures live audio speech data and transmits the audio data to a processing unit. The processing unit converts the audio to speech data. The processing unit also removes censored words, emphasizes key words, and edits that data to include product and promotional messages where appropriate. The processing unit then uses code words contained in the speech data to send the speech data to the appropriate social media outlets for output.

17 Claims, 4 Drawing Sheets



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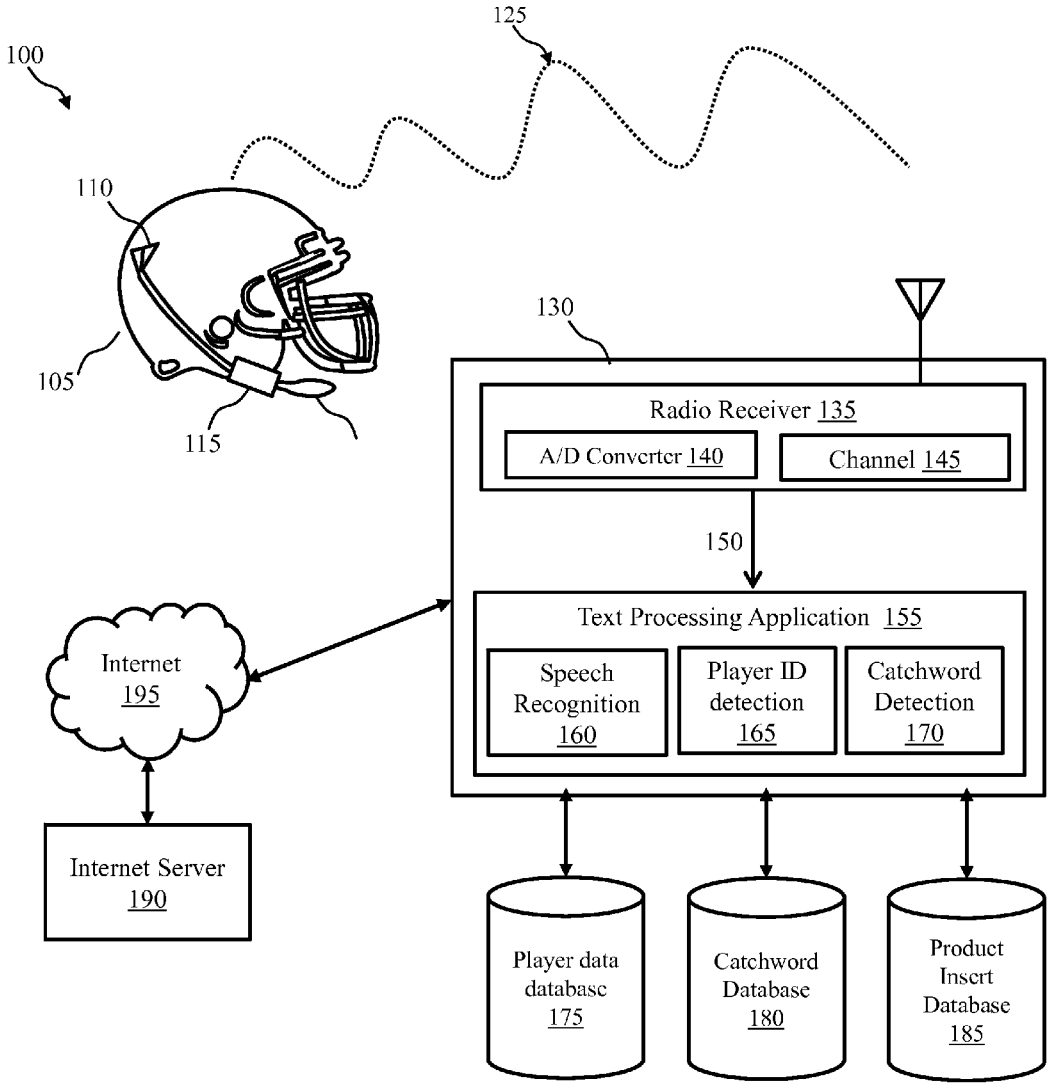
100
125
110
105
115
130
Radio Receiver 135
A/D Converter 140
Channel 145
150
Text Processing Application 155
Speech Recognition 160
Player ID detection 165
Catchword Detection 170
Internet 195
Internet Server 190
Player data database 175
Catchword Database 180
Product Insert Database 185

Fig. 1

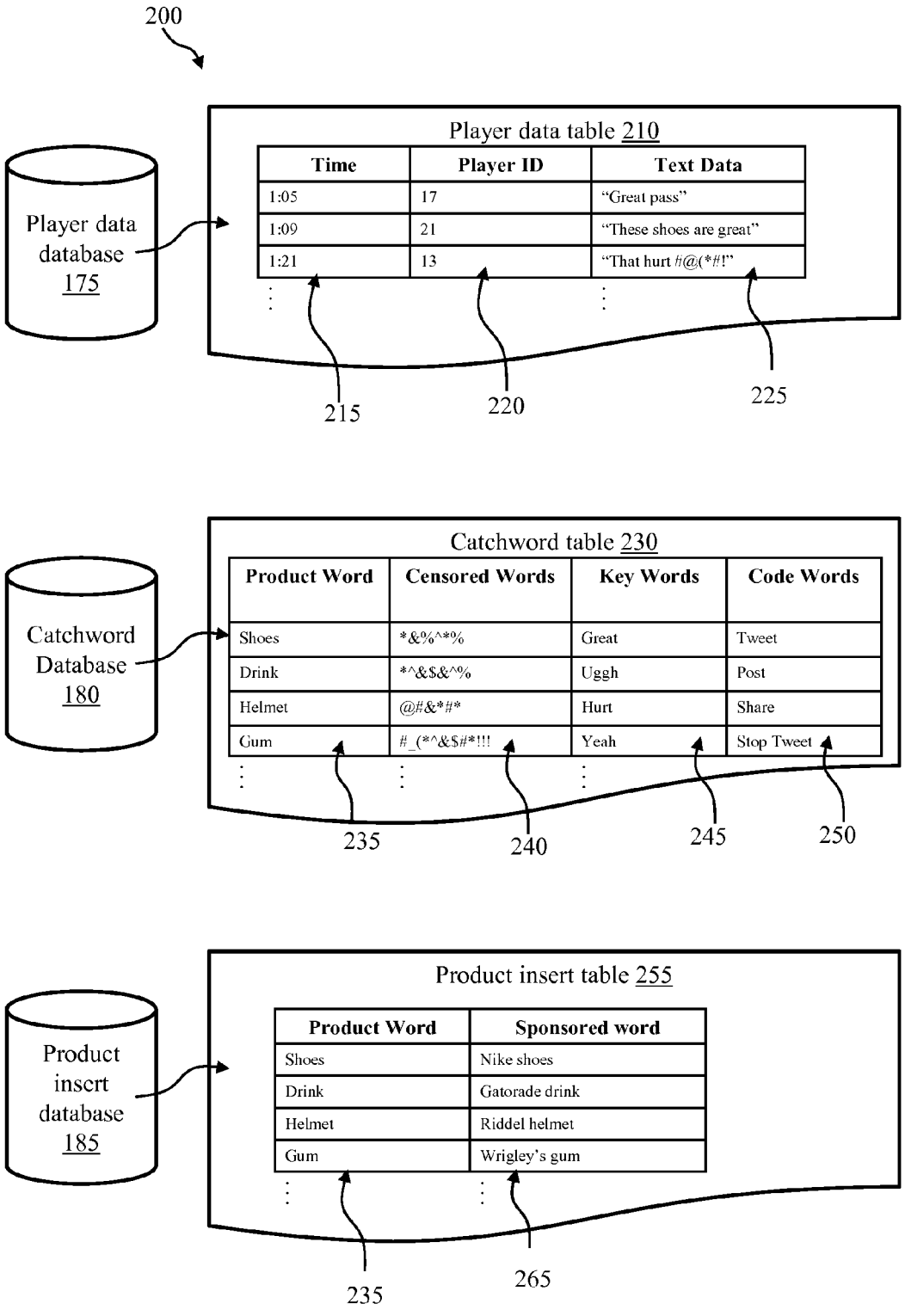
200
Player data database 175
Player data table 210
Time
Player ID
Text Data
1:05
17
"Great pass"
1:09
21
"These shoes are great"
1:21
13
"That hurt #@(*#!"
215
220
225
Catchword Database 180
Catchword table 230
Product Word
Censored Words
Key Words
Code Words
Shoes
*&%^*%
Great
Tweet
Drink
*^&$&^%
Uggh
Post
Helmet
@#&*#*
Hurt
Share
Gum
#_(*^&$#*!!!
Yeah
Stop Tweet
235
240
245
250
Product insert database 185
Product insert table 255
Product Word
Sponsored word
Shoes
Nike shoes
Drink
Gatorade drink
Helmet
Riddel helmet
Gum
Wrigley's gum
235
265

Fig. 2

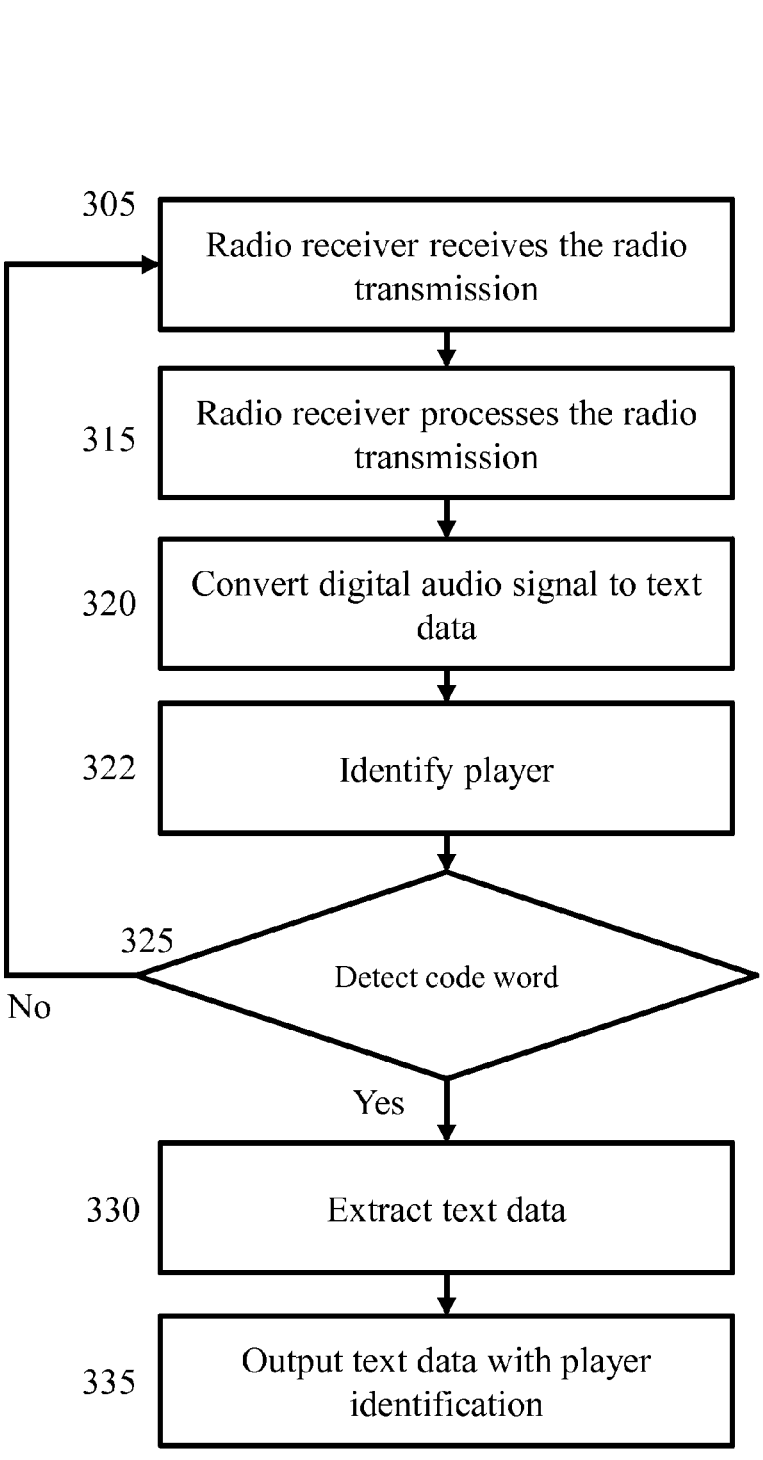
300
305
Radio receiver receives the radio transmission
315
Radio receiver processes the radio transmission
320
Convert digital audio signal to text data
322
Identify player
325
Detect code word
No
Yes
330
Extract text data
335
Output text data with player identification

Fig. 3

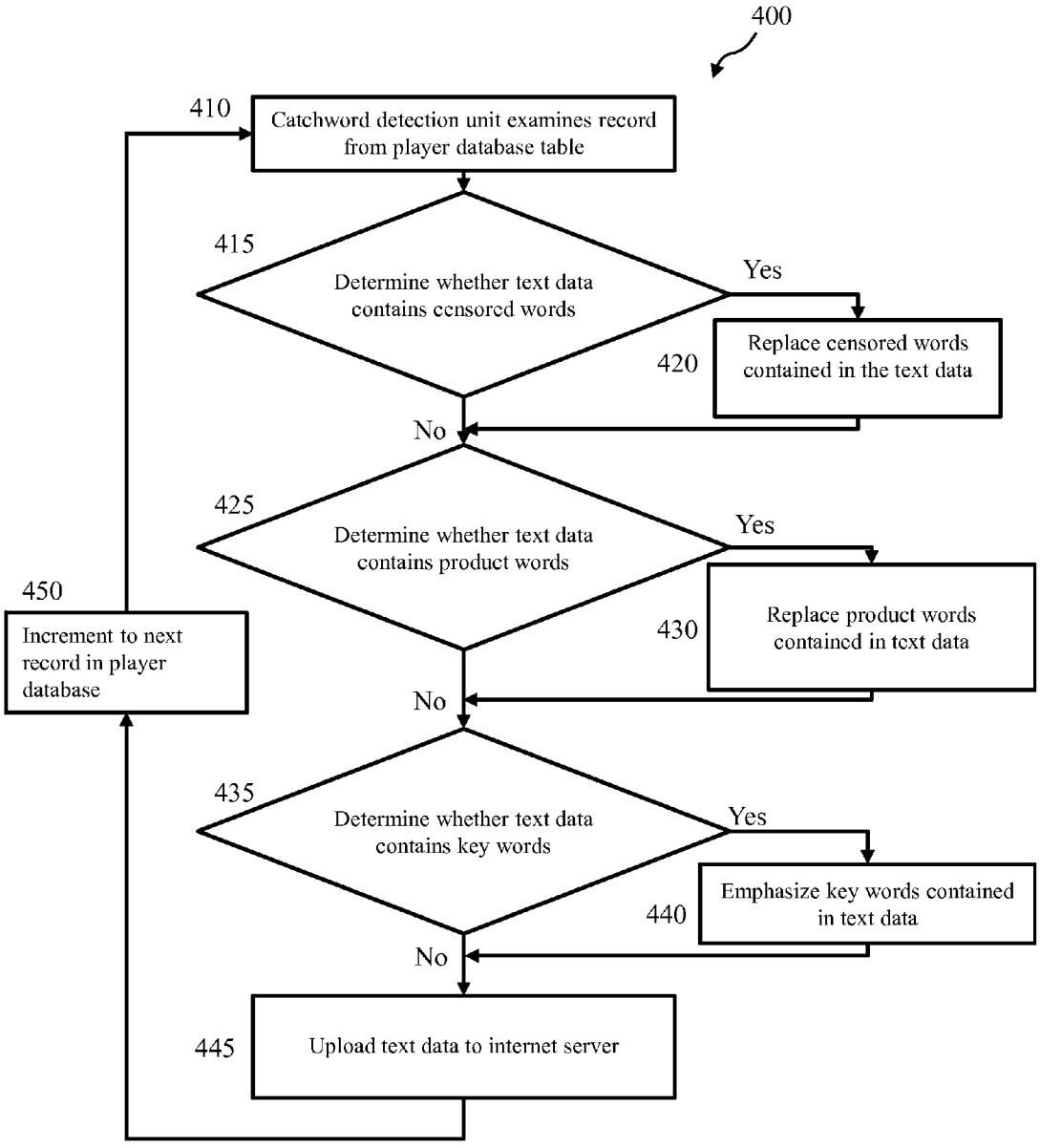
400
410
Catchword detection unit examines record from player database table
415
Determine whether text data contains censored words
Yes
420
Replace censored words contained in the text data
No
425
Determine whether text data contains product words
Yes
430
Replace product words contained in text data
No
435
Determine whether text data contains key words
Yes
440
Emphasize key words contained in text data
No
445
Upload text data to internet server
450
Increment to next record in player database

Fig. 4

SOCIAL NETWORK SYSTEM

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the priority benefit of U.S. provisional application No. 62/023,355, filed on Jul. 11, 2014 and titled "Active Social Network Football Helmet," the disclosure of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention is generally related web publishing. More specifically, the present invention is related to modifying received audio speech data for automatic text publication on social media.

2. Description of the Related Art

Players, teams, and businesses currently use social media to increase their reach and communicate with fans to promote themselves, their views, products, and brands. Social media messages are commonly integrated into television broadcasts through commentary or displayed alongside live broadcasts in a portion of the display.

It is difficult, however, for athletes to send messages through social media during the course of a game because athletes do not have free use of their hands. An athlete cannot send, for example, a live comment regarding an event during the game because the athlete cannot leave the game to send a message through a phone. This limitation makes it difficult for players, teams, and businesses to fully leverage social media.

There is a need in the art for improved systems and methods for delivering real-time game commentary from players through social media.

SUMMARY OF THE PRESENTLY CLAIMED INVENTION

One exemplary method for sending social media messages describes receiving audio speech data through one or more microphones. The method also describes processing the audio speech data at a processing unit. The processing unit converts the audio speech data to text speech data. The method also describes comparing the text speech data to one or more databases. The one or more databases include one or more code words. The method also describes sending the processed speech data for output through social media. The processing unit routes text speech data for output through social media according to code words included in the text speech data.

One exemplary system for sending social media messages provides one or more microphones, a processing unit, and a processor. The one or more microphones receive audio speech data through one or more microphones. The processing unit processes the audio speech data and compares the text speech data to one or more databases. The processing unit converts the audio speech data to text speech data. The one or more databases include one or more code words. Execution of instructions stored in the memory by the processor performs a set of operations. The operations include sending the processed speech data for output through a social media interface. The processing unit routes text speech data for output through the social media interface according to code words included in the text speech data.

One exemplary non-transitory computer-readable storage medium is also described, the non-transitory computer-readable storage medium having embodied thereon a program executable by a processor to perform an exemplary method for sending social media messages. The exemplary program method describes receiving audio speech data. The program method also describes processing the audio speech data. The program method also describes converting the audio speech data to text speech data. The program method also describes comparing the text speech data to one or more databases. The one or more databases include one or more code words. The program method also describes sending the processed speech data for output through social media. The processing unit routes text speech data for output through social media according to code words included in the text speech data.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** illustrates a system for sending social media messages.

FIG. **2** illustrates database tables in a player data database, a catchword database, and a product insert database.

FIG. **3** illustrates a method for processing speech data.

FIG. **4** illustrates a method for processing text data.

DETAILED DESCRIPTION

The present invention includes systems and methods for sending social media messages without the need for keyboard inputs. A microphone captures live audio speech data and transmits the audio data to a processing unit. The processing unit converts the audio to speech data. The processing unit also removes censored words, emphasizes key words, and edits that data to include product and promotional messages where appropriate. The processing unit then uses code words contained in the speech data to send the speech data to the appropriate social media outlets for output.

Social messages can be sent from entertainment or cultural events that are presented at a theatre, gymnasium, stadium, or other facility to a group of people. Such events include a wide variety of sporting events such as football (American and Global), baseball, basketball, soccer, ice hockey, lacrosse, rugby, cricket, tennis, track and field, golf, cycling, motor sports such as automobile or motorcycle racing, horse racing, Olympic games, and the like; cultural events such as concerts, music festivals, plays, the opera, and the like; religious events; and more permanent exhibitions such as museum, historic home, and the like.

FIG. **1** illustrates a system **100** for sending social media messages. The system **100** includes a wearable item **105**, a processing unit **130**, the Internet **195**, an internet server **190**, and three databases **175**, **180**, and **185**. As illustrated in FIG. **1**, a microphone **120**, radio transmitter **115**, and an antenna **110** are connected to the helmet **105**. The processing unit includes a radio receiver **135** and a text processing application **155**. The radio receiver **135** includes an analog-to-digital converter **140** and a means for receiving one or more channels **145**. The text processing application **155** includes a speech recognition unit **160**, a player identification detection unit **165**, and a catchword detection unit **170**. The three databases **175**, **180**, and **185** include code words (not shown).

The microphones **120** can be acoustic-to-electric transducers for converting audio data into an electrical signal. The microphones **120** can be used with a wireless transmitter. The microphones can be wearable. The radio transmitter **115** is in communication with the microphone **120**. The wearable items **105** can be sporting equipment used in the course of playing a sport, including protective equipment or non-protective equipment. The wearable items **105** can include hel-

mets, protective padding, uniforms, jerseys, footwear, eyewear (e.g. glasses, face shields), or balls (e.g. football, baseball, soccer ball).

The processing unit **130** is in communication with the radio transmitter **115** through the antenna **110**, wherein the radio transmitter **115** produces a radio transmission **125** for delivery to the processing unit **130**. The processing unit **130** can be a personal computer, a desktop computer, or a server. The radio transmission **125** is a radio frequency signal carrying audio data. The radio transmitter **115** converts an electrical signal from the microphone **120** into a radio signal for transmission to the antenna **110**. The radio transmitter **115** can be a one-way radio transmitter. The radio transmitters **115** can include at least one power source, a radio oscillator, a signal modulator, and a radio frequency amplifier. The radio transmitter **115** can be wireless or wearable. The antenna **110** can convert an electrical signal into radio waves for transmitting a radio-frequency audio signal. The processing unit is in communication with the server **190** through the Internet **195**. The system **100** can automatically publish digital speech data to a website through the Internet **195**. The server **190** is connected to the Internet **195** and hosts one or more remotely accessible web pages. The server can publish content received via the Internet **195** to social media websites such as Twitter or Facebook. The digital speech data can be representative of verbal commentary during a sporting event.

The radio receiver sends a digital audio signal **150** to the text processing application **155**. The analog-to-digital converter **140** converts analog radio signal to digital audio signal. The radio receiver **135** receives radio transmissions **125** through one or more channels **145**. The radio receiver **135** is a radio frequency receiver for receiving the radio transmission **125** from the radio transmitter **115**. The one or more channels **145** are data parameters defining the channel through which the radio receiver **135** receives the radio transmission **125**. The data parameters control or change the frequency monitored by the radio receiver **135**. The one or more channels **145** are identified with a speaker, such as an athlete.

The speech recognition unit **160** includes a software program for translating spoken words to text. The speech recognition unit **160** may be an automatic speech recognition program. The speech recognition unit **160** converts the digital audio signal into text. The player identification detection unit **165** is a software program for determining the identity of a sports player by the channel associated to each of the one or more athletes. The catchword detection unit **170** is a software program for recognizing code words in the speech recognition unit output, wherein code words include catchwords and product words. The catchword detection unit modifies the speech recognition unit output.

The player data database **175**, the catchword database **180**, and the product insert database **185** may be relational databases such as Microsoft Access or Microsoft SQL Server or flat files, such as comma-separated value text files, where the flat files are compatible with applications such as Microsoft Office applications. The player data database **175** is a database of player speech data produced by the text processing application **155**. The player data database **175** is a relational database with one or more data tables. Each of the one or more player data database data tables contains the speech recognition unit output and metadata associated with the speech recognition unit output. The catchword database **180** is a database of catchwords provided to the catchword detection unit **170**. Each of the one or more catchword database data tables contains catchwords used to modify the text data. The product insert database **185** is a database of product words and sponsored words, wherein the sponsored words are associated with product words and the sponsored words are used to replace associated product words in the text data.

FIG. **2** illustrates database tables **200** in the player data database **175**, the catchword database **180**, and the product insert database **185**. The processing unit **130** uses the player data database data table **210** to organize text speech data. The player data database table **210** organizes text data **225** according to time **215** and player identification **220**. The timestamp for each text data record corresponds to when the system **100** created the text data record. Player identification **220** provides the identity of the speaker associated with the text data record. The player identification **220** can be the name of the sports player, the jersey number of the sports player, the channel identification associated with the speaker, or the frequency associated with the speaker. The speech recognition unit **160** outputs the text data **225**.

The processing unit uses the catchword database **180** to modify text speech data. The catchword database table **230** includes product words **235**, *censor* words **240**, key words **245**, and code words **250**. The processing unit modifies the text speech data to remove *censor* words **240** listed in the database. *Censor* words **240** include obscene language and content prohibited by government agencies (such as the Federal Communications Commission). The processing unit modifies the text speech data to replace product words **235** with corresponding sponsored words **265** listed in the product insert table **255**. Product words **235** include specific products, words associated with specific brands, or words associated with specific products. The processing unit further modifies the text speech data to emphasize key words **245** listed in the database. Key words include interjections and words that convey excitement. The processing unit routes modified speech data for output through social media according to code words **250** listed in the database. Code words **250** include words associated with posting messages to particular social media forums, as well as words indicating the beginning and end of messages.

The processing unit uses the product insert database **185** to modify text speech data. The product insert database table **255** includes product words **235** and sponsor words **265**. The processing unit modifies the text speech data to replace product words **235** listed in the database with sponsored words **265** listed in the database. Product words **235** include specific products, words associated with specific brands, or words associated with specific products. Sponsored words **265** include words associated with advertising, endorsements, or promotional deals, as well as words for specific brands or marketing campaigns.

FIG. **3** illustrates a method **300** for processing speech data. The method begins at block **305**, where the radio receiver **135** receives the radio transmission **125**. The radio receiver **135** may receive radio transmissions **125** through multiple channels, and wherein the channels may be predefined and changed. At block **315**, the radio receiver processes the radio transmission **125** using the analog-to-digital converter **140** to convert the radio transmission **125** into digital audio signal. At block **320**, the text processing application **155** uses the speech recognition unit **160** to convert the digital audio signal to text data. The text processing application **155** may use a standard input/output stream. At block **310**, the text processing application **155** uses the digital audio signal **150** and channel **145** information to identify the player. The player identification unit **165** then associates the text data with a player based on player information associated with the channel. The player identification unit **165** can compare the frequency of the digital audio signal with information regarding each player and the channel associated with each player. The

text processing application **155** stores the text data produced by the speech recognition unit **160**, player identity data produced by the player identification detection unit **165**, and the current time in the player data database **175**. At block **325**, the text processing application **155** uses the catchword detection unit **170** to examine the text data for words stored in the catchword database **180** and product insert database **185** and process the text data according to the detected words. The method goes back to block **305** if the text data does not include code words used to route the text data for output through social media. If the text data includes one or more code words used to route the text data for output through social media, the method moves to block **330**. The text processing application **155** can use a loop construct to compare each word of the text data to the code words **250**. At block **330**, the text processing application **155** extracts the text data for output. The text processing application **155** can select a series of words for extraction based on the code word used and the location of the code word. The text processing application **155** can select a series of words or characters starting with a code word **250** and a ending with code word **250**. The text processing application can also select a series of words or characters between a first occurrence of a code word **250** and a second occurrence of a code word **250** in the text data. At block **335**, the text processing application outputs the text data together with the player identification for publication through social media.

FIG. **4** illustrates a method **400** for processing text data. The method begins at block **410**, where catchword detection unit **170** examines a record from the player database table **210**.

At block **415**, the catchword detection unit determines whether the text data contains censored words **240** listed in the catchword database table **230**. The catchword detection unit can compare each word in the record with each censored word **240** listed in the catchword database table **230**.

If the text data does not contain censored words **240**, the method continues to block **408**. If the text data contains censored words **240** listed in the catchword database table **230**, the method continues to block **420**. At block **420**, censored words contained in the text data are replaced with redacted text or a placeholder. The method then continues to block **425**.

At block **425**, the catchword detection unit determines whether the text data contains product words **235** listed in the catchword database table **230**. The catchword detection unit can compare each word in the record with each product word **235** listed in the catchword database table **230**.

If the text data does not contain product words **235**, the method continues to block **435**. If the text data contains product words **235** listed in the catchword database table **230**, the method continues to block **430**. At block **430**, product words contained in the text data are replaced with sponsored words listed in the product insert table **255**. The method then continues to block **435**.

At block **435**, the catchword detection unit determines whether the text data contains key words **245** listed in the catchword database table **230**. The catchword detection unit can compare each word in the record with each key word **245** listed in the catchword database table **230**.

If the text data does not contain key words **245**, the method continues to block **445**. If the text data contains key words **245** listed in the catchword database table **230**, the method continues to block **440**. At block **440**, key words contained in the text data are emphasized in the text data. The text processing application may insert markup language formatting commands before and after each key word to emphasize the key word. The method then continues to block **445**.

At block **445**, the processing unit **130** uploads the text data to the internet server **190** via the Internet **195**. The processing unit **130** can upload the text data using a content submission application programming interface (API) provided by an operator of the internet server **190** to allow for direct publishing to a social media website. At block **450**, the catchword detection unit increments to the next record in the player database table **210** and repeats the method, beginning again at block **304**.

While various embodiments have been described above, it should be understood that they have been presented by way of example only, and not limitation. The present descriptions are not intended to limit the scope of the presently claimed invention or to limit the scope of embodiments of the presently claimed invention. The present descriptions are intended to cover alternatives, modifications, and equivalents consistent with the spirit and scope of the disclosure.

What is claimed is:

1. A method for sending social media messages, the method comprising:

receiving at a radio receiver audio speech data captured through one or more microphones, wherein each of the one or more microphones are worn by a participant in an event;

executing instructions stored in memory, wherein execution of the instructions by a processor:

processes the received audio speech data to convert the received audio speech data to text speech data, wherein the text speech data includes one or more words and is provided for input into a first database based on identity of the participant,

compares text speech data in the first database to one or more additional databases, wherein the one or more additional databases include:

one or more code words, and

one or more sponsored words provided, by one or more advertisers, for input into the one or more additional databases, wherein the one or more sponsored words include a company name and

modifies text speech data based on the comparison, wherein the one or more sponsored words are used to replace one or more text speech data words according to the one or more additional databases; and

sending the modified text speech data to a social media server for publication based on the comparison according to the one or more additional databases using one or more code words included in the text speech data.

2. The method of claim **1**, wherein the one or more sponsored words are used to replace one or more product words included in the text speech data.

3. The method of claim **1**, wherein the text speech data is further modified by removing, from the text speech data, one or more censor words included in the one or more additional databases.

4. The method of claim **1**, wherein the audio speech data is received at captured through a microphone attached to a helmet.

5. The method of claim **1**, wherein the text speech data is further modified by excerpting the text speech data using one or more code words included in the text speech data.

6. The method of claim **1**, wherein the audio speech data is received through a channel associated with the participant.

7. A system for sending social media messages, the system comprising:

a radio receiver that receives audio speech data captured through one or more microphones, wherein each of the one or more microphones are worn by a participant in an event;

a processor that executes instructions stored in memory, wherein execution of the instructions by the processor:

processes the received audio speech data to convert the received audio speech data to text speech data, wherein the text speech data includes one or more words and is provided for input into a first database based on identity of the participant,

the compares text speech data in the first database to one or more additional databases, wherein the one or more additional databases include:

one or more code words, and

one or more sponsored words provided, by one or more advertisers, for input into the one or more additional databases, wherein the one or more sponsored words include a company name, and

modifies text speech data based on the comparison, wherein the one or more sponsored words are used to replace one or more text speech data words according to the one or more additional databases; and

a communication interface that sends the modified text speech data to a social media server for publication based on the comparison, according to the one or more additional databases, using one or more code words included in the text speech data.

8. The system of claim **7**, wherein the one or more sponsored words are used to replace one or more product words included in the text speech data.

9. The system of claim **7**, wherein the text speech data is further modified by removing, from the text speech data, one or more censor words included in the one or more additional databases.

10. The system of claim **7**, wherein the audio speech data is captured through a microphone attached to a helmet.

11. The system of claim **7**, wherein the text speech data is further modified by excerpting the text speech data using one or more code words included in the text speech data.

12. The system of claim **7**, wherein the audio speech data is received through a channel associated with the participant.

13. A non-transitory computer readable storage medium having embodied thereon a program executable by a processor to perform a method for sending social media messages, the method comprising:

receiving audio speech data captured through one or more microphones, wherein each of the one or more microphones are worn by a participant in an event;

processing the received audio speech data to convert the received audio speech data to text speech data, wherein the text speech data includes one or more words and is provided for input into a first database based on identity of the participant;

comparing the text speech data in the first database to one or more additional databases, wherein the one or more additional databases include:

one or more code words, and

one or more sponsored words provided, by one or more advertisers, for input into the one or more additional databases, wherein the one or more sponsored words include a company name;

modifying text speech data based on the comparison, wherein the one or more sponsored words are used to replace one or more text speech data words according to the one or more additional databases; and

sending the modified text speech data to a social media server for publication based on the comparison, according to the one or more additional databases, using one or more code words included in the text speech data.

14. The non-transitory computer-readable storage medium of claim **13**, wherein the one or more sponsored words are used to replace one or more product words included in the text speech data.

15. The non-transitory computer-readable storage medium of claim **13**, wherein the text speech data is further modified by removing, from the text speech data, one or more censor words included in the one or more additional databases.

16. The non-transitory computer-readable storage medium of claim **13**, wherein the text speech data is further modified by excerpting the text speech data using one or more code words included in the text speech data.

17. The non-transitory computer-readable storage medium of claim **13**, wherein the audio speech data is received through a channel associated with the participant.

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